

The practical value of these deductions consists in the guide they afford toward the improvement of the varieties of corn that we grow. For instance: by planting in adjoining hills, or better still, the mixed seed of two varieties of corn, one of which is distinguished for its length of ear and smallness of cob, and the other for the large size of its kernel, we should anticipate in many instances the transfer of the large kernel to the small ear and of the small kernel to the large ear. By selecting from the crop those ears which have length and the large kernel, we should anticipate, by a series of selections, the attaining of a new variety, in which the large kernel and length of cob would be persistent. The same remarks hold true with the dent corns. But in the matter of selections the true principle would seem to be to plant but one kernel of the desired type from an ear of the desired type, and to keep the plant from this kernel free from the influence of plants of another type, and securing the crop through self-fertilization. After the first year of this procedure, by the selection of two or more kernels of the same type from different plants, cross fertilization should be used, the crop being gradually purified by selection.

While the maize plant as a rule is not self fertilized, that is, as a general thing the pollen from one plant fertilizes the silk of another, yet in very many cases the pollen and the silk upon the same plant is synchronous, and self fertilization becomes possible, and undoubtedly is of frequent occurrence. The pollen ripens from below upward, and thus the fall of the pollen, through the successive ripening of the blooms, may last for three or four days, and there is a great variation in period of blooming as between individual plants. The silk maintains its receptivity for pollen for some little time, but for how

long a period we do not yet know from direct observation. It seems, however, true, that closely following pollination, the silk loses its transparent structure and begins to shrivel, while before pollination is effected the silk retains its succulency for several days.—E. LEWIS STURTEVANT, *Director*.

#### PROGRESS OF SORGHUM SUGAR MANUFACTURE.

The Champaign Sugar Works, Champaign, Ill., were the first large sorghum sugar works ever started in the United States. They ground the cane this season raised on about 1,000 acres of land, and the result is a perfect success in the way of making a first class quality of sugar that polarizes 97 degrees, and much sweeter than sugar made from cane or beet roots. For years experiments have been made to find out some way to change sorghum syrup into sugar. The attempt was unsuccessful up to last year, when the State of Illinois offered a bounty to any one who would succeed in granulating the syrup into sugar. Experiments made in the State University of Illinois, in Champaign, by Professors Weber and Scovell, succeeded in accomplishing the result. A ready sale is found for all the sugar and syrup made, and the success here will cause a large number of sugar works to be erected all over the West, for sorghum cane will grow where corn can be raised, and where farmers can make \$15 an acre in raising corn they can realize \$30 an acre in raising sorghum cane to sell to these factories.

The result of this discovery is likely to make as great a change in this country as the making of beet sugar has in Europe, where to-day two-thirds of all the sugar in the world is made. Out of a total production of three million tons, France, Belgium, and Germany produce two million tons. The sugar